Results of the Fall 2007 DCD Groundwater Monitoring Activities and Planned 2008 Activities

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Presentation Outline

Results from the 2007 DCD Groundwater Monitoring Activities

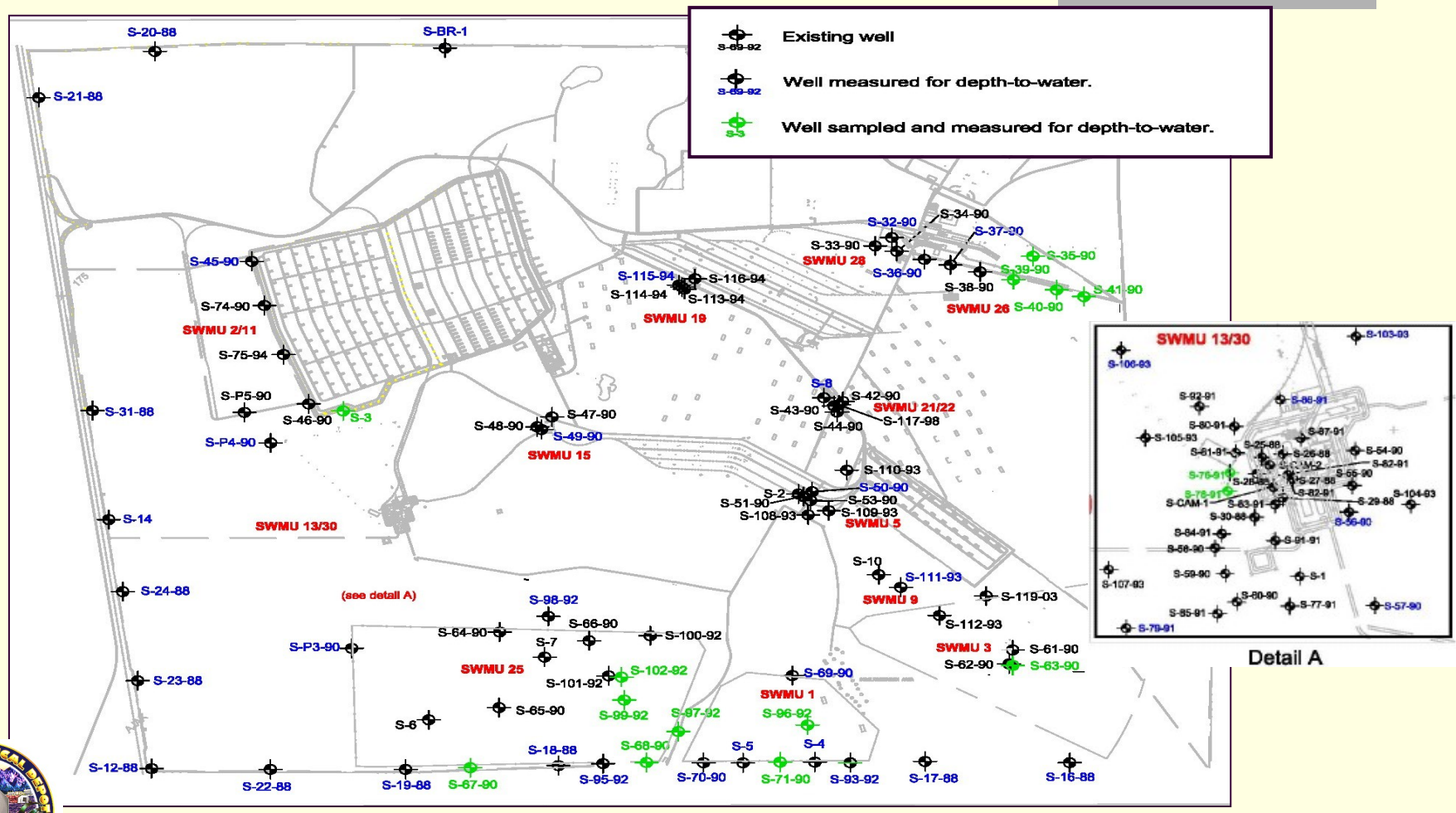
- Groundwater Field of Flow
- Occurrence of Contaminants

Planned 2008 Monitoring Activities

2008 Well Installation Plans

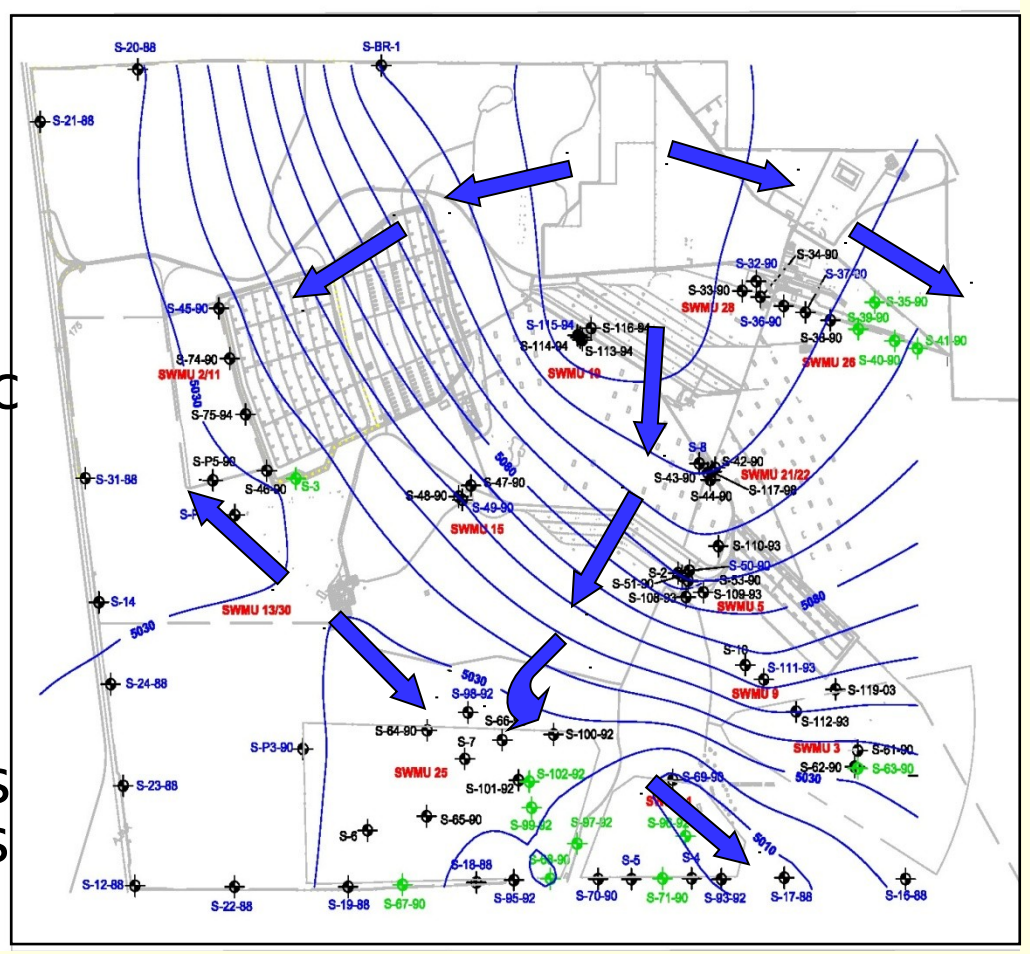
- SWMU 25
- SWMU 26

DCD Groundwater Monitoring Locations



DCD Groundwater Field of Flow

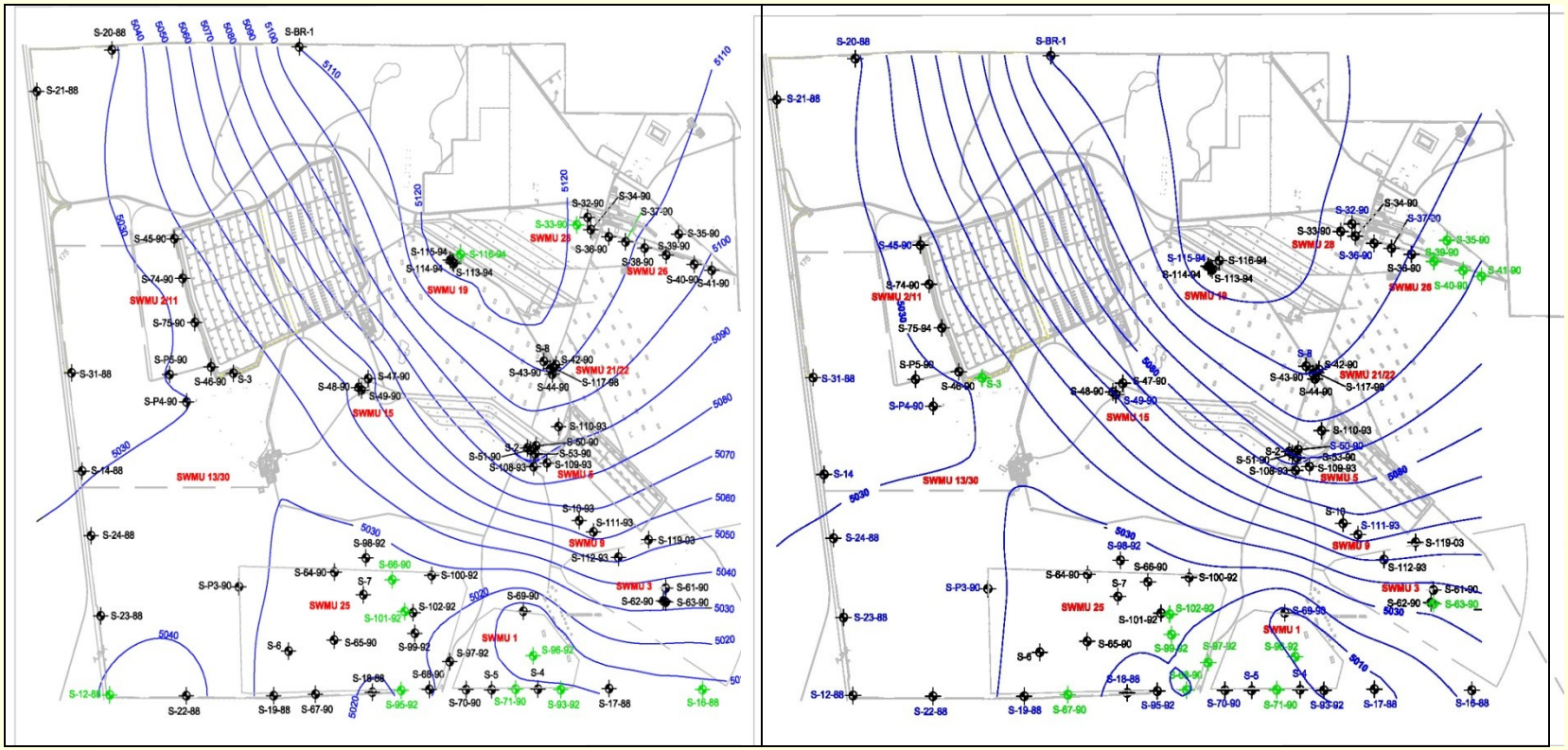
- Depth-to-water measured in 52 wells
- Water-level data used to contour the potentiometric surface
- Water-level data compared to previous monitoring rounds to evaluate trends



Temporal Changes in Groundwater Flow at DCD

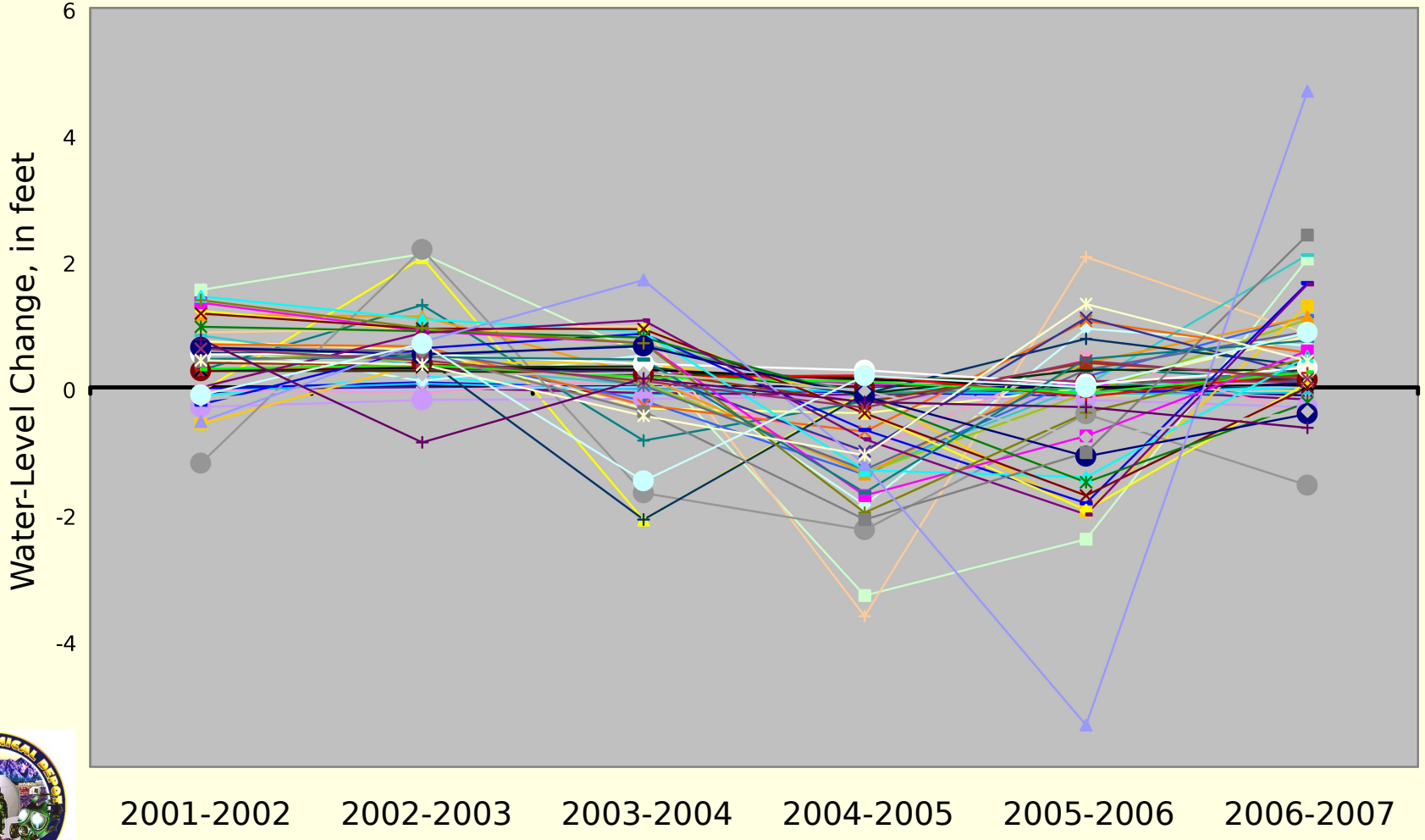
2006

2007



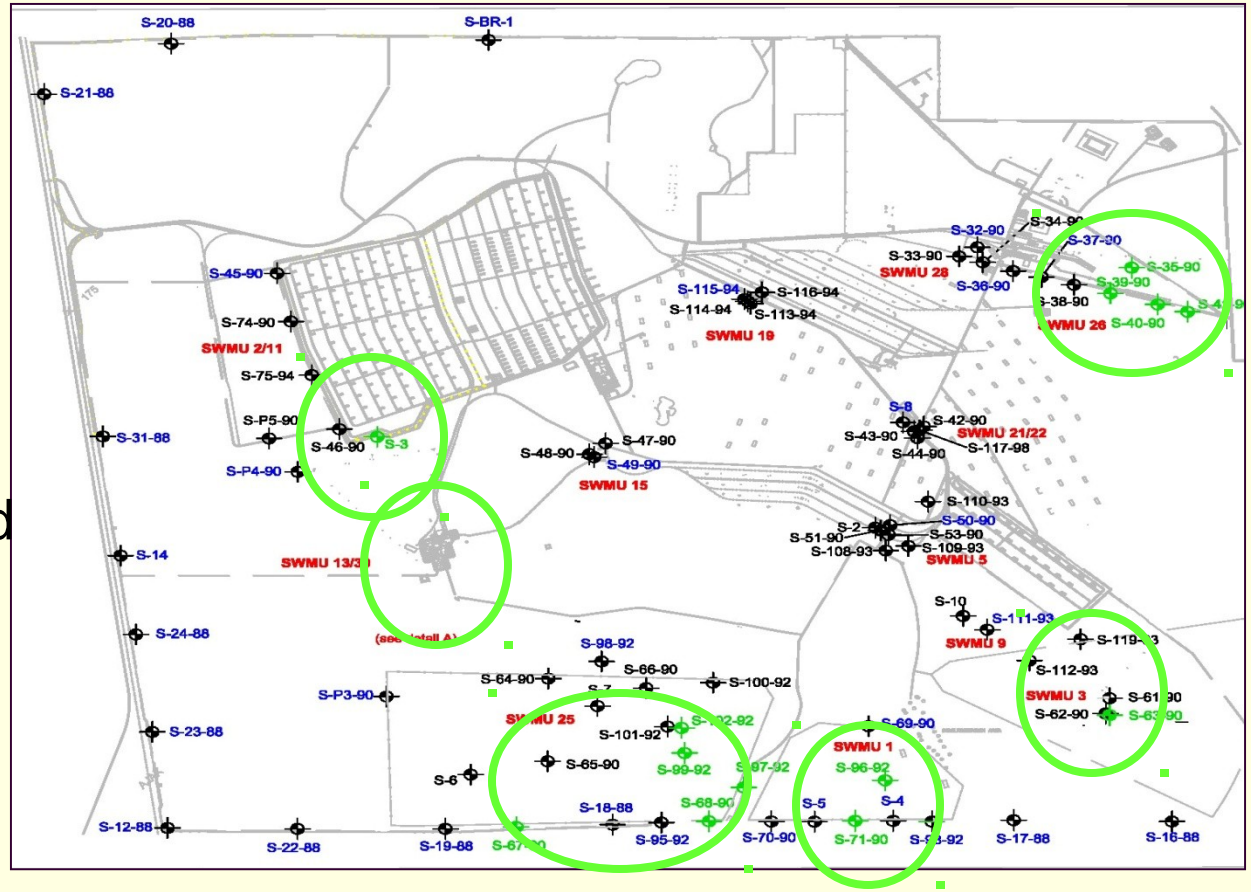
Deseret Chemical Depot
RAB Meeting
July 15, 2008

Water-Level Changes in DCD Monitoring Wells

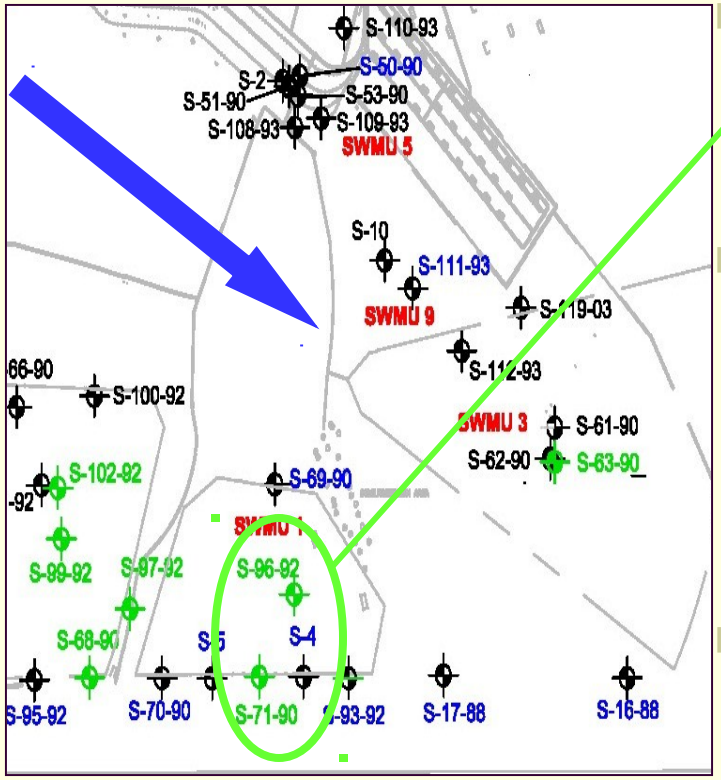


Contaminants in DCD Groundwater

- Water samples collected from 15 wells for selected chemical analyses
- Wells located at SWMUs 1, 2/11, 3, 13/30, 25, and 26
- Analyses for VOCs, SVOCs, Explosives, TPH, ARPs, Total and Dissolved Metals

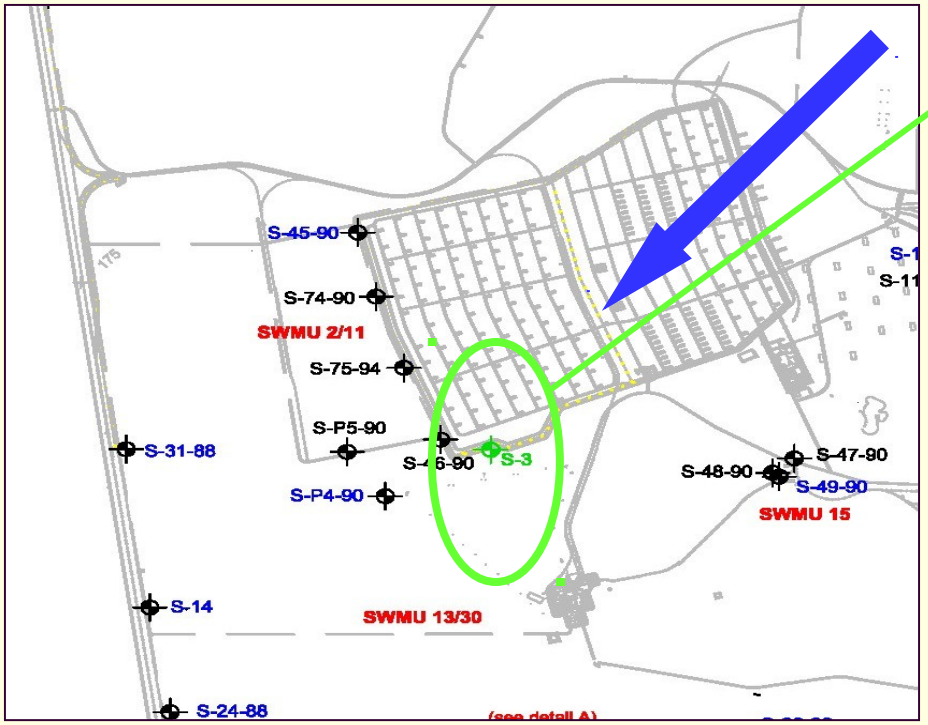


SWMU 1- Former disposal trenches (two wells)



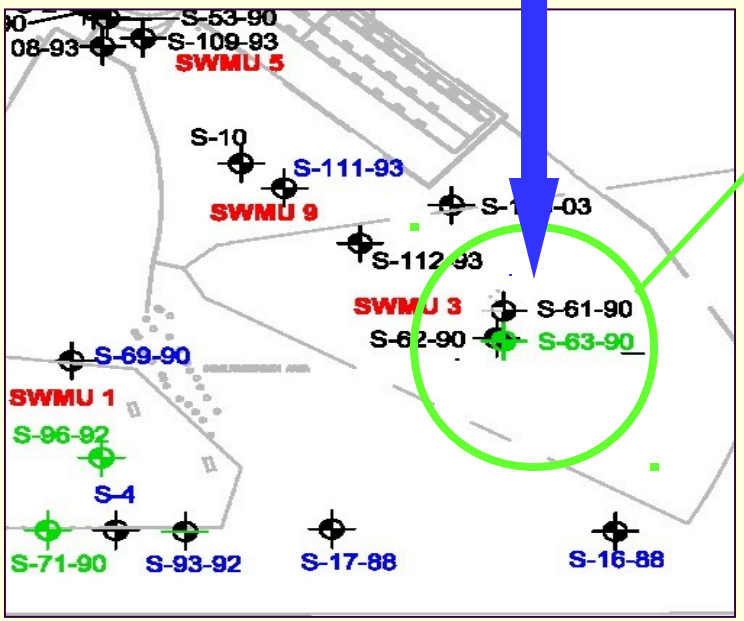
- Samples from wells S-71-90 and S-96-92 analyzed for VOCs, Explosives, ABPs, and Metals.
- Dissolved and total arsenic concentrations at 170 and 280 ug/L in well S-71-90 (MCL 10 ug/L). Concentrations similar to those of previous years.
- Arsenic concentrations in well S-96-92 below MCL. Concentrations similar to previous years.
- No VOCs, explosives, or ABPs detected in 2007.

SWMU 2 Gravel Pit and SWMU 11 Chemical Storage Area (one well)



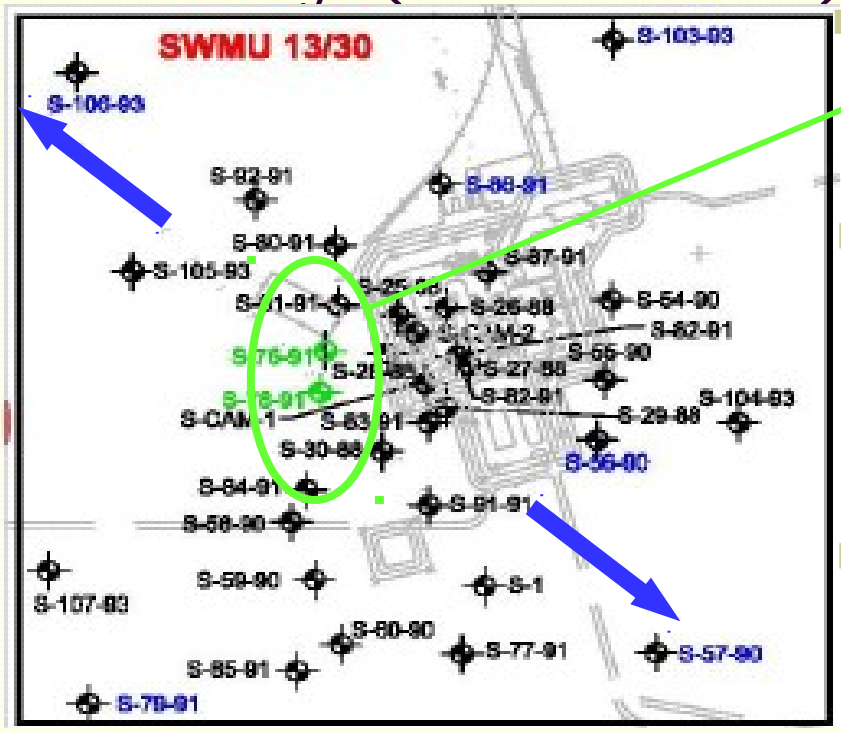
- Samples from well S-3 analyzed for VOCs and SVOCs
- No VOCs or SVOCs detected in 2007. Detections in previous years below the reporting limit.

SWMU 3 Impounding Bay/Disposal Pit (one well)



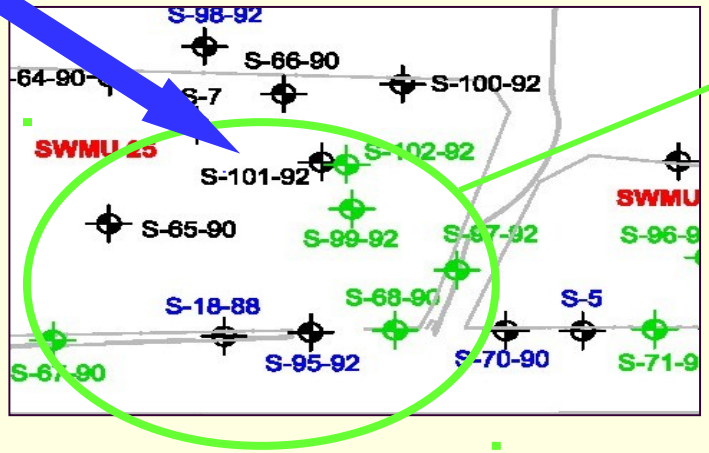
- Samples from well S-63-90 analyzed for VOCs, ABPs, and metals
- Dissolved and total arsenic concentrations of 14 and 32 ug/L in well S-63-90 (MCL 10 ug/L) in 2007. Increase in total arsenic from previous years
- No VOCs or ABPs detected in 2007. Consistent with previous years

SWMU 13/30 Chemical Agent Munitions Disposal System (CAMDS) facility (two wells)



- Samples from wells S-76-91 and S-78-91 analyzed for VOCs, ABPs, and TPH as DRO.
- TCE detected in 2007 below RL in well S-76-91 (0.54J ug/L) and at 3.2 ug/L in well S-78-91.
- TPH as DRO reported at 210J ug/L in well S-78-91. This value later revised by data validator to nondetect.
- No other analytes detected in 2007. Analytical results consistent with those of previous years

SWMU 25 West Demilitarization Area Disposal Pits (five wells)

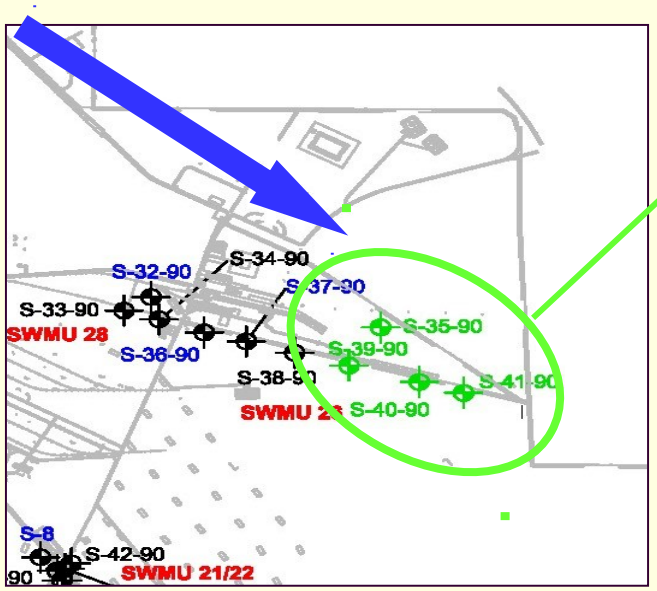


- Samples from wells S-67-90, S-68-90, S-97-92, S-99-92, and S-102-92 analyzed for VOCs, SVOCs, explosives, ABPs, and metals.

Well	Total Arsenic Ug/L	Dissolved Arsenic Ug/L
S-67-90	700	430
S-68-90	240	180
S-97-92	120	120
S-99-92	53	55
S-102-92	28	26

- Dissolved and total arsenic detected in all five wells in 2007. Concentrations similar to those of previous years
- Carbon tetrachloride and chloroform detected in well S-99-92 (320J ug/L and 4.9J ug/L, respectively) in 2007.
- No explosives or ABPs detected

SWMU 26 Inactive landfill (four wells)



- Samples from wells S-35-90, S-39-90, S-40-90, and S-41-90 analyzed for VOCs and SVOCs.
- 1,1,1-TCA, 1,1-DCA, and 1,1 DCE detected in 2007 in sample from well S-40-90 (4.7, 3.4, and 0.65J ug/L, respectively). Results similar to previous years.
- Estimated detections (below RL) of benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, and butyl benzylphthalate in well S-39-90
- No detections in samples from wells S-35-90 and S-41-90.

2007 Monitoring Summary

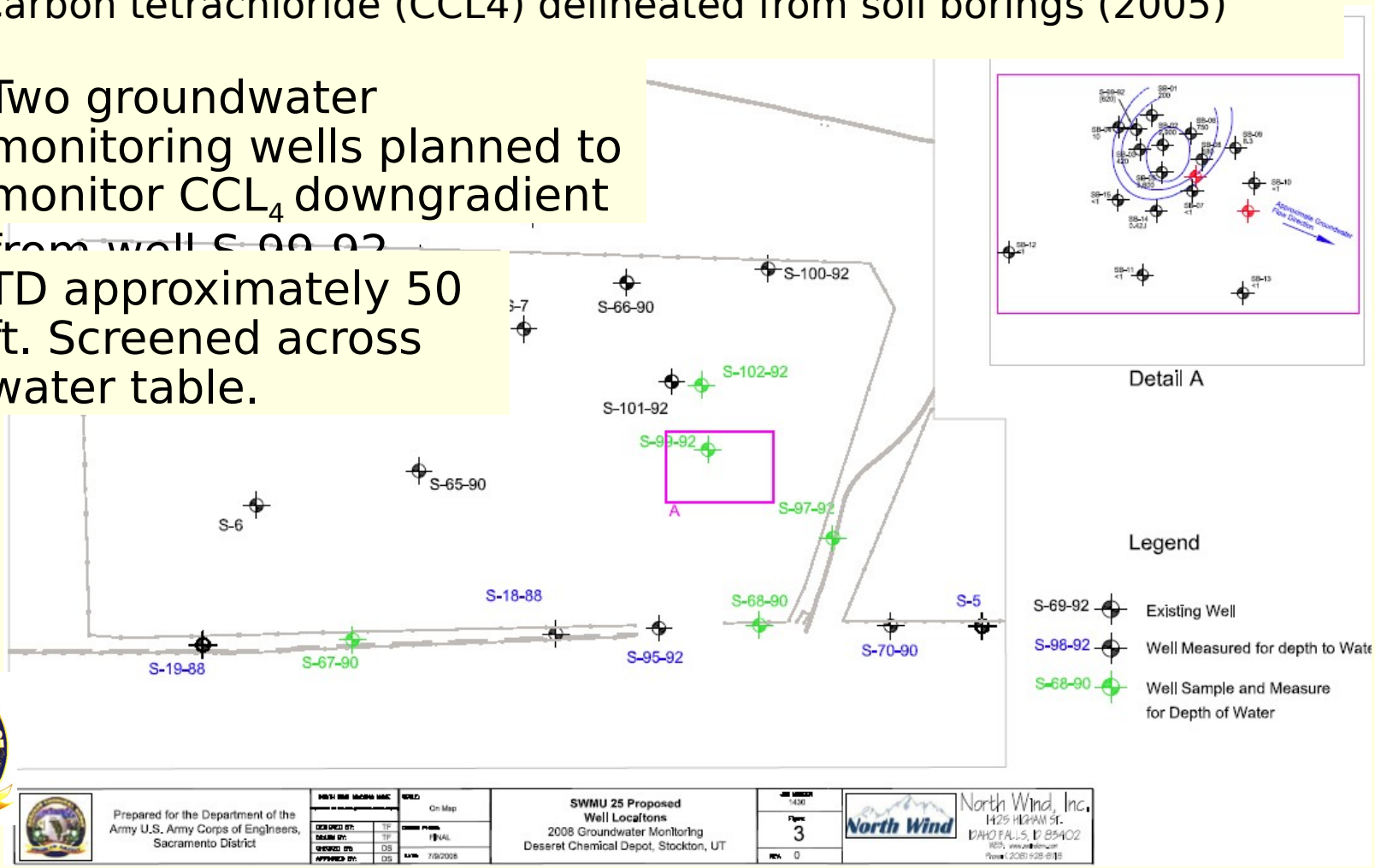
- No significant changes in the field of flow
- Contaminant concentrations consistent with previous measurements

Planned 2008 Groundwater Monitoring Program

- Measure depth to groundwater in 52 wells as in 2007
- Collect and analyze groundwater samples from 16 wells at seven SWMUs
- Use High Performance Liquid Chromatography –Mass Spectrometry methods for the analysis of ABPs to alleviate past problems with matrix interference.

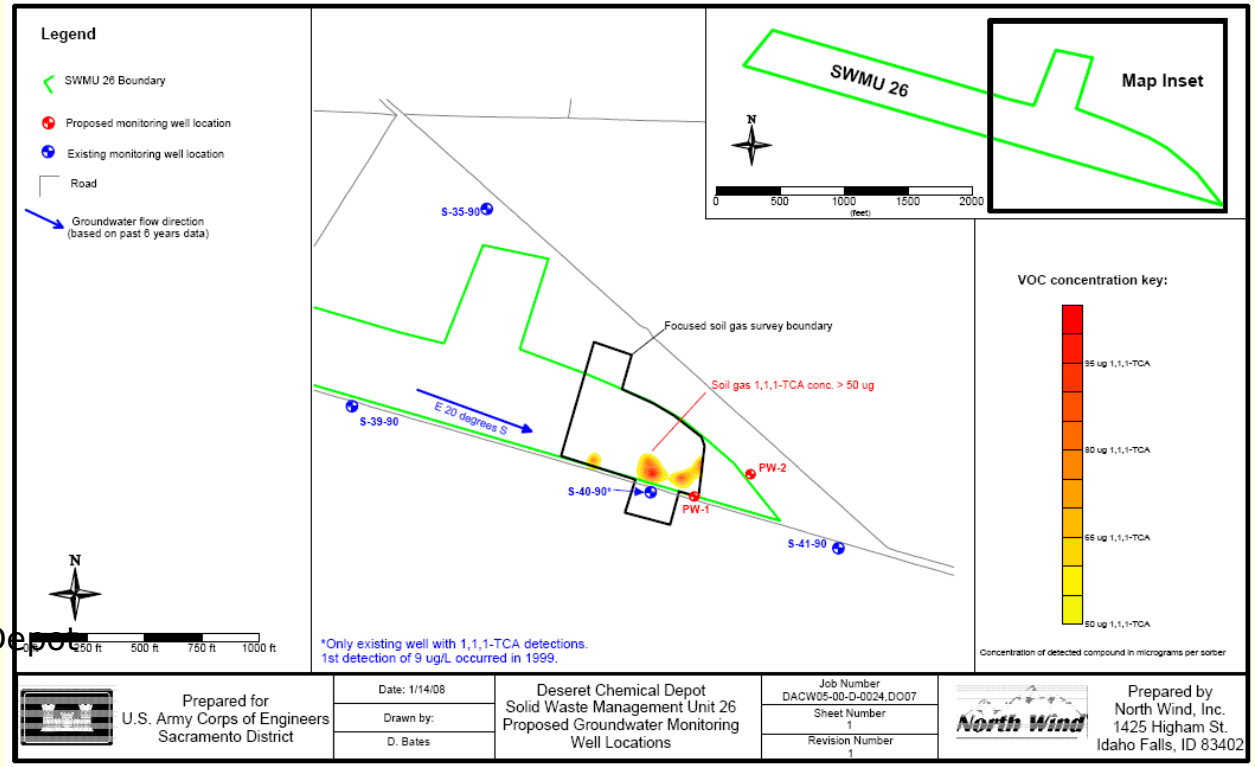
Planned SWMU 25 Well Installation Activities

- Carbon tetrachloride (CCL4) delineated from soil borings (2005)
- Two groundwater monitoring wells planned to monitor CCL_4 downgradient from well S-99-92
- TD approximately 50 ft. Screened across water table.



Planned SWMU 26 Well Installation Activities

- Passive soil gas survey indicated source of 1,1,1-Trichloroethane (TCA) north of well S-40-90.
- Two groundwater monitoring wells planned to monitor TCA
- TD approx. 300 ft, screened across water table


Legend
SWMU 26 Boundary
Proposed monitoring well location
Existing monitoring well location
Road
Groundwater flow direction (based on past 6 years data)
SWMU 26
Map Inset
S-35-90
Focused soil gas survey boundary
Soil gas 1,1,1-TCA conc. > 50 ug
S-39-90
E 20 degrees S
PW-2
S-40-90
PW-1
S-41-90
VOC concentration key:
95 ug 1,1,1-TCA
80 ug 1,1,1-TCA
65 ug 1,1,1-TCA
50 ug 1,1,1-TCA
Concentration of detected compound in micrograms per sorber
*Only existing well with 1,1,1-TCA detections.
1st detection of 9 ug/L occurred in 1999.
Prepared for U.S. Army Corps of Engineers Sacramento District
Date: 1/14/08
Drawn by: D. Bates
Deseret Chemical Depot Solid Waste Management Unit 26 Proposed Groundwater Monitoring Well Locations
Job Number DACW05-00-D-0024,DO07
Sheet Number 1
Revision Number 1
Prepared by North Wind, Inc. 1425 Higham St. Idaho Falls, ID 83402

Questions

Proposed Wells, 2008 GW Sampling Program: SWMUs 1, 3, 9, 13/30, 25, 26, and 28

SWMU	Wells to Sample	Wells to be Measured for Depth to Water
1	S-71-90 S-96-92	S-4, S-5, S-16-88, S-17-88, S-69-90, S-70-90, S-71-90, S-93-92, S-96-92
2/11	None	S-3, S-45-90, S-P4-90
3	S-63-90	S-63-90
5	None	S-50-90
9	S-119-03	S-111-93
13/30	S-76-91 S-78-91	S-56-90, S-57-90, S-76-91, S-78-91, S-79-91, S-86-91, S-103-93, S-106-93
15	None	S-49-90
19	None	S-115-94
21/22	None	S-8
25	S-67-90 S-68-90 S-97-92 S-99-92 S-102-92	S-18-88, S-19-88, S-67-90, S-68-90, S-95-92, S-97-92, S-98-92, S-99-92, S-102-92, S-P3-90 Measure LNAPL thickness of wells sampled.
26	S-35-90 S-39-90 S-40-90 S-41-90	S-35-90, S-39-90, S-40-90, S-41-90
28	S-34-90	S-34-90
Non-SWMU Wells		S-12-88, S-14, S-20-88, S-21-88, S-22-88, S-23-88, S-24-88, S-31-88, S-BR-1

2008 GW Monitoring Proposed Analyte List

SWMU	Well	SW8260B (VOCs)	SW8270C (SVOCs)	SW 8330A (Explosives)	SW8015B mod (TPH Diesel)	Organic Acids	Thiodiglycol
1	S-71-90	x		x		x	x
	S-96-92	x		x		x	x
3	S-3	x				x	x
9	S-63-90	x				x	x
13/30	S-76-91	x			x	x	x
	S-78-91	x			x	x	x
25	S-99-92	x	x	x		x	x
	S-102-92	x	x	x		x	x
	S-97-92	x	x	x		x	x
	S-68-90	x	x	x		x	x
	S-67-90	x	x	x		x	x
26	S-39-90	x	x				
	S-35-90	x	x				
	S-40-90	x	x				
	S-41-90	x	x				
28	S-34-90	x	x				